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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/727,379	12/04/2003	Harry Contopanagos	BP2110DIV	6971
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GARLICK HARRISON & MARKISON P.O. BOX 160727 AUSTIN, TX 78716-0727			EXAMINER TUGBANG, ANTHONY D	
			ART UNIT	PAPER NUMBER
			3729	
			MAIL DATE	DELIVERY MODE
			12/28/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/727,379

Applicant(s)

CONTOPANAGOS ET AL.

Examiner

A. Dexter Tugbang

Art Unit

3729

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2007.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 8-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- ☐ Notice of Informal Patent Application
- ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on October 9, 2007 has been entered.

Election/Restrictions

2. The restriction requirement (mailed on May 4, 2006) is hereby repeated and maintained. Claims 8 through 15 continue to stand as being withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on September 5, 2006.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1 through 7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In Claim 1, it is unclear from the disclosure how the wherein clause, i.e. the phrase of “wherein corners...inductor” (lines 4-6), further limits the process of making an on-chip inductor. In reviewing the specification, there is a real disconnect between the reduction of impedance of the on-chip inductor at an *operating frequency* with negligible effects on inductance of the on-chip inductor, and the process of manufacturing the on-chip inductor. The effects of impedance and inductance occur during operation of the on-chip inductor, i.e. at an operating frequency, and **not** during the method for manufacturing the on-chip inductor. So the wherein clause is a future event that occurs during operation and not during the method for manufacturing. Furthermore, the wherein clause contradicts the preamble of the claim, which is clearly directed to a method for manufacturing and not a method of operating an on-chip inductor.

The examiner asks the applicant(s) the following question. How does the shape of the conductive winding affect the process of making?

The same problem occurs with the wherein clauses recited in each of Claims 4, 6 and 7.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1 and 4 through 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujiki 5,497,137.

Fujiki discloses a method for manufacturing an on-chip inductor comprising: creating a dielectric layer (e.g. 14c); and creating a conductive winding (e.g. 22) on the dielectric layer where the conductive winding has a substantially square geometry, with shaped angled exterior corners, and a spiral configuration.

Regarding Claim(s) 5, Fujiki further teaches that the conductive winding is formed by creating a first winding (e.g. 22, 24a) on a first layer (e.g. 14c), creating a second winding (e.g. 28) on a second layer (e.g. 14d), and connecting the first winding to the second winding with a bridge (e.g. 15a, 15b, 15c).

As best understood, because that shape of the conductive winding of Fujiki is the exact same as the applicant(s), particularly the angled exterior corners, Fujiki is inherently capable of meeting all of the wherein clauses of Claims 1, 4 and 6.

7. Claims 1, 4, 6 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Apel et al 6,407,647.

Apel discloses a method for manufacturing an on-chip inductor comprising: creating a dielectric layer (e.g. 26, in Fig. 3C); and creating a conductive winding (e.g. 12) on the dielectric layer where the conductive winding has a substantially square geometry, spiral configuration, angled exterior corners, and angled interior corners.

As best understood, because that shape of the conductive winding of Apel is the exact same as the applicant(s), particularly the angled exterior corners and the angled interior corners, Apel is inherently capable of meeting all of the wherein clauses of Claims 1, 4, 6 and 7.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 2 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Apel et al. Apel appears to show that a winding can include an interior angle of approximately 135 degrees and an exterior angle of approximately 135 degrees, for the same purpose of operation in a transformer.

However, in the event that the applicant(s) believe that Apel does not actually state what angles are specified at the interior corner or the exterior corner of the winding, the specific angles of the interior corner or the exterior corner are each considered to be an effective variable within the level of ordinary skill in the art of manufacturing windings in inductors or transformers. It is noted that the angles at the corners of the winding of Apel are the very same in shape by visual inspection when compared to the applicant(s) winding. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have provided a specific angle of 135 degrees for the interior corner and 135 degrees for the exterior

corner, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Response to Arguments

10. Applicant's arguments filed on October 9, 2007 have been fully considered but they are not persuasive.

The applicant(s) argue that the prior art does not teach that the corners of the conductive winding "are geometrically shaped to reduce impedance of the on-chip inductor at an operating frequency with negligible effects on inductance of the on-chip inductor".

The examiner disagrees with this because the examiner's position is that this feature is related to the operation of the on-chip inductor and is insignificant to the method for manufacturing the on-chip inductor. The applicant(s) have not provided a nexus between the shape of the conductive winding during operation and the shape of the winding during manufacture. The shape of the conductive windings of Fujiki and Apel are certainly capable of operating in this manner, as the shape of the windings of Apel and Fujiki are exactly the same as the shape of the applicant(s) conductive winding.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Dexter Tugbang whose telephone number is 571-272-4570. The examiner can normally be reached on Monday - Friday 7:30 am - 4:00 pm.

Application/Control Number:
10/727,379
Art Unit: 3729

Page 7

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Peter Vo can be reached on 571-272-4690. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

**/A. Dexter Tugbang/
Primary Examiner
Art Unit 3729**

December 21, 2007